



# Air Force Research Laboratory|AFRL

*Science and Technology for Tomorrow's Air and Space Force*

## **Success Story**

### **SENSORS DIRECTORATE ENGINEER/ TECHNICIAN DUO INVENTS SWITCH FOR AFSOC RADIOS**



Sensors Directorate personnel invented a lightweight, durable, user-friendly switch, called the Kessler-Coates (KeCo) switch, that is easily operated with gloves or in the dark. The KeCo switch enables ground-to-ground, as well as ground-to-satellite, communications with existing radio equipment used by Air Force Special Operations Command (AFSOC). Now forward-deployed troops do not have to manually switch antennas, which could have put Air Force personnel at extreme risk.



Air Force Research Laboratory  
Wright-Patterson AFB OH

## Accomplishment

Lieutenant Colonel Don Kessler and Master Sargent Dave Coates, both of the Sensors directorate, responded to the AFSOC commander's request to provide a solution to a problem the command had with their special operations radios. They invented a lightweight, durable switch that allows AFSOC soldiers to instantly switch back and forth between a satellite antenna and an omni-directional, line-of-site antenna.

## Background

Forward-deployed AFSOC forces carry more than 100 lbs of equipment, not including food or water. Vital to a successful mission are the special operations radios to keep in contact with satellite and ground communications systems. These radios are lightweight and use as little power as necessary; however, they are short one antenna port.

Troops must physically switch modes between ground-to-ground and ground-to-satellite capabilities. This means every time troops switch antennas, they have to break off communications, then try to reestablish them. The delays caused by manually switching the antennas left troops exposed to gunfire and delayed contact with aircraft to abort or change a mission.

Within 3 months of the request, the directorate developed and delivered to AFSOC the KeCo switch that allows for quick switching between satellite communications and air-to-air communications. The KeCo is an antenna switch specifically tailored to several communications radios used by AFSOC forces in combat and is another directorate attempt to meet an urgent need for support to the warfighter community.

AFSOC plans to produce 1,300 devices for Air Force units. The directorate anticipates that Department of Defense customers may order more than 10,000 devices within the next year or two for use throughout the world.

## Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-17)

Sensors  
Support to the Warfighter